Prioritization 3.0 Public Transportation

Scoring Criteria Summary Report

May 2014

In 2013, the North Carolina General Assembly created the Strategic Transportation Investments Act (STI) to strengthen the state's economy and provide a new formula to direct construction funds through strategic transportation investments. Governor Patrick McCrory signed the Act on June 26, 2013. Governor McCrory and the N.C. Department of Transportation (NCDOT) are committed to improving the quality of life for citizens in North Carolina. The desire is to find more efficient ways to better connect all North Carolinians - to jobs, health care, education and recreational experiences. The STI law will help make that possible by better leveraging existing funds to enhance the state's infrastructure, providing greater opportunity for economic growth.

The STI law outlines a new Strategic Mobility Formula (SMF) which is a new way to fund and prioritize transportation projects to ensure they provide the maximum benefit to our state. It allows NCDOT to use its existing revenues more efficiently to fund more investments that improve North Carolina's transportation infrastructure, create jobs and help boost the economy. Funding programed by the NCDOT in STI for Public Transportation projects is not the total calculated budget of a project. Each system adheres to the FTA requirements necessary to complete the financial requirements of the project with either local matching funds or a combination of local and federal funds.

It was apparent even in the early stages of the STI draft bill that the identification of scoring criteria, methodologies, and transportation data to quantify the need of a future project would be critical to potential bill implementation. A Workgroup (previously established by NCDOT for its Prioritization 3.0 process) provided recommendations for both highway and non-highway scoring methodologies to support bill requirements. The Workgroup consisted of representatives from MPO's, RPO's, NCDOT planning staff, Division Engineers and other advocacy organizations. Public Transportation Division (PTD) staff attended meetings and brought forward criteria and data recommendations that would best represent and point to the needs of the state's public transportation systems.

In addition to the input provided by the workgroup, the PTD coordinated with Federal, State and local agencies, as well as public and private agencies, such as the Federal Transit Administration (FTA), North Carolina State University - Institute for Transportation Research and Education (NCSU-ITRE) , North Carolina Department of Transportation, (NCDOT), local Community Transportation Systems, Urban Transit Systems, Metropolitan Planning Organizations, and Rural Planning Organizations to identify and utilize data that would be used to develop project scores. The Division's coordination with all stakeholders allowed for opportunities to ensure that the methodology developed was consistent and transparent in order to incorporate into current industry standards and associated guidelines; as well as providing a streamlined process to ensure everyone's input. Data sources that were identified as resources

for project scoring included; system safety data, vehicle utilization data, annual trips, and service and revenue hours. PTD utilized access to the National Transit Database, NC Operating Statistics (OPSTATS), and the State Management plan to use as references while examining the requested capital expenditures.

Other divisions internal to NCDOT assisted in data configuration and map production. This coordination assisted in the development of the quantitative scoring process as well as displaying all information in easy to read user friendly graphics. The Divisions coordination with all stakeholders allowed for opportunities to ensure that the methodology developed was consistent and transparent in order to incorporate into today's industry standards and associated guidelines; as well as providing a streamlines process to ensure everyone's input.

The NCDOT Board of Transportation on November 7, 2013, approved the criteria, weights and measures used in the SMF (see summary table on next page). The following pages provide a brief description of each Public Transit project scoring criteria, how it will be measured, its data source and what percentage it is of a project's overall score. This information provides a clear, concise and transparent view of the data used in the SMF.

In order to better understand the types of routes the following definitions may be useful:

- ✓ **Demand Response:** A transit mode comprised of passenger cars, vans or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. The majority of these trips are scheduled at least 24 hours in advance. Services are open to the general public and to human service clients.

- ✓ **Fixed Route:** A transit service in which vehicles run along an established path at preset times.

  Note: Fixed Route and Demand Response are available in both urban and rural areas.

- ✓ **Fixed Guideway:** System of vehicles that can operate only on its own corridor constructed for that purpose (e.g. commuter rail, light rail).

Eligibility Definitions for Public Transportation

- Statewide: Public Transportation Systems are not eligible for state funds on this level
- Regional:
  - ✓ Service spanning two or more counties and serving more than one municipality
  - ✓ Funding amounts not to exceed 10% of regional allocation
- Division:
  - ✓ Service not included on Regional level
  - ✓ Multimodal terminals and stations serving passenger transit systems

Eligible Project Types by Funding Category

- Fleet Expansion Vehicles – Bus, Van, Light Transit Vehicle
- Facilities – Facility, Bus Shelter, Park and Ride, Property Acquisition/Design/Construction, Paving/Resurfacing
- Fixed Guideway- Commuter Rail, Light Rail, Street Car, Bus on Shoulder, Bus Rapid Transit, Expansion/Replacement, Track Improvement/Extension

Fleet Expansion Vehicles – Bus, Van, Light Transit Vehicle

Benefit/Cost

Definition

This criterion is a measure of the projected ridership for the life of the expansion vehicle relative to the cost of the vehicle to the state. (Projects costs are the cost to the Department and/or (from the perspective of the Strategic Transportation Investments law) the cost to the state's Highway Trust Fund.) The purpose of this measure is to indicate how many trips can be expected for every dollar of state match requested.

Formula

Demand Response = (Current Annual Average Trips per Vehicle x Life of the Vehicle) / State Match
Fixed Route (New Route) = (Projected Annual Ridership x Life of the Vehicle) / State Match
Fixed Route (Headway Reduction) = (Existing Annual Route Ridership for a Vehicle x Life of the Vehicle) / State Match

Data Source

Transit systems report operating statistics to the National Transit Database and to NCDOT. The reported data is used to validate ridership data and projections submitted with Project Funding Request Forms.

Criteria Percent Weight by STI Category

Regional Impact – 45%
Division Needs – 25%

Vehicle Utilization Data

Definition

This criterion measures the utilization of vehicles within a transit system's fleet; a higher vehicle utilization ratio indicates a greater need for expansion vehicles and lower ratios indicate a lesser need for expansion vehicles. This criterion recognizes systems that are maximizing their current assets.

Formula

Demand Response = Maximum vehicles utilized during the peak hour as identified from the vehicle utilization data collection period divided by the total fleet size (includes spares).
Fixed Route = Number of vehicles operated in maximum service divided by the number of vehicles available for maximum service.

Data Source

Transit systems report vehicle utilization data to the National Transit Database and to NCDOT. The data is reported at multiple times each year and compared to previously reported data and vehicle inventory.

Criteria Percent Weight by STI Category

Regional Impact – 5%
Division Needs – 5%

System Safety

Definition

This criterion compares the transit system's safety statistics to the national average among comparable systems.

Formula

(National average reportable incidents/PMT – System reported incidents/PMT) + (National average reportable injuries/PMT – System reported injuries/PMT) + (National average reportable fatalities/PMT – System reported fatalities/PMT) = Safety Result

Data Source

Transit systems report vehicle utilization data to the National Transit Database and to NCDOT. The data is reported at multiple times each year and compared to previously reported data and vehicle inventory.

Criteria Percent Weight by STI Category

Regional Impact – 5%
Division Needs – 5%

Note: NTD uses rural and urban criteria, therefore, rural terminology replaces demand response and urban terminology replaces fixed route.
Urban systems will use PMT (Million Passenger Miles Traveled). Rural systems will use Million Revenue Miles Traveled

Connectivity

Definition

This criterion measures the connectivity of the proposed expansion of service to vital destinations (medical, employment, commercial, education, and other transportation modes). The measure will be the projected increase in ridership weighted according to the types of destinations the expansion of service will serve (20% per destination: medical, employment, commercial, education, and other transportation terminal/transfer).

Formula

(Ridership Increase x Facility Destination) / System Ridership = Weighted % Increase in Ridership.

The Points of Interest that are used to determine this score are inclusive but not limited to:

- ✓ Hospitals
- ✓ Airports/Train Stations
- ✓ Military Installations
- ✓ State Parks
- ✓ Colleges & Universities
- ✓ Business Locations

Data Source

Transit systems provided information relating to the route connections and where each would connect. Projected increase in ridership was provided by the transit systems and validated utilizing past ridership history and development patterns.

Criteria Percent Weight by STI Category

Regional Impact – 5%
Division Needs – 5%

System Operational Efficiency

Definition

This criterion measures the number of trips compared to the amount of service or revenue hours reported annually by the transit system.

- ✓ Revenue Hours - the time a vehicle is available to the general public and revenue is generated.
- ✓ Service Hours – the time a vehicle begins service includes revenue and non-revenue operation

Formula

Demand Response = Trips / Service Hours
Fixed Route = Trips / Revenue Hours

Data Source

Transit systems report vehicle utilization data to the National Transit Database and to NCDOT. The data is reported at multiple times each year and compared to previously reported data and vehicle inventory.

Criteria Percent Weight by STI Category

Regional Impact – 10%
Division Needs – 10%

Facilities – Facility, Bus Shelter, Park and Ride, Property Acquisition/Design/Construction, Paving/Resurfacing

Age of Facilities

Definition

Replacement, improvement or construction of a new facility *(assumes an industry standard of 45 years as useful life, functionally obsolete facilities will be assigned an age of 45)*

Formula

Score = Facility Age / Useful Life
Note: The percentage of the useful life will be used as the score for this criterion

Data Source

Transit system will conduct a feasibility study whereas the system will note a length of time a system has occupied current facility and data will be obtained through the study. FTA/FHWA requirements

Criteria Percent Weight by STI Category

Regional Impact – 40%
Division Needs – 30%

Note: Excludes Park & Ride and Bus Shelter

Facility Demand

Definition

Measure of capacity or demand for the new or expanded Maintenance & Operations facilities and transit centers

Formula

Ratio of peak service vehicles to bus bays (transit centers) or maintenance capacity (maintenance facilities); percentage over capacity is the score (A ratio of 1 is at capacity, anything >1 is over capacity); Peak Service / Capacity

Data Source

Transit system will conduct a feasibility study whereas the system will note a length of time a system has occupied current facility and data will be obtained through the study. FTA/FHWA requirements

Criteria Percent Weight by STI Category

Regional Impact – 40%

Division Needs – 30%

Park and Ride Demand

Definition
Park and ride lots benefit traditional bus, rail transit and Transportation Demand Management (TDM) modes like vanpools and carpools

Formula
The number of spaces in the lot multiplied by the estimated utilization divided by the state match
(Number of Spaces x Utilization) / State Match

Data Source
Estimated Utilization is determined by a feasibility study provided local transit system

Criteria Percent Weight by STI Category
Regional Impact – 40%
Division Needs – 30%

Bus Shelter Demand

Definition
Gauges the relative need for bus shelter installation, including equipment, any right of way need, and if needed sidewalk connection to nearest intersection

Formula
Compare average boarding and alightings of the stops proposed to upgrades to shelters
Score = Average Boardings + Average Alightings

Data Source
Estimated Utilization is determined by a feasibility study provided local transit system

Criteria Percent Weight by STI Category
Regional Impact – 40%
Division Needs – 30%

Note: Specific stops must be identified and bus stop boarding and alighting data provided

Benefit/Cost

Definition
Examines the benefit (trips) relative to the cost of the project to the state

Formula
Annual trips provided by the facility divided by the cost of the project to the state
Score = Annual Trips / State Match

Data Source
Transit systems report operating statistics to the National Transit Database and to NCDOT. The reported data is used to validate ridership data and projections submitted with Project Funding Request Forms.

Criteria Percent Weight by STI Category
Regional Impact – 5%
Division Needs – 5%

System Operational Efficiency

Definition

To compare the number of trips to the amount of service hours or revenue hours reported
Revenue Hours - The time a vehicle is available to the general public and revenue is generated
Service Hours – The time a vehicle begins service includes revenue and non-revenue operations

Formula

Annual ridership divided by total hours; Maximum of 100 points

Demand Response = Trips / Service Hour
Fixed Route = Trips / Revenue Hour

Data Source

Transit systems report operating statistics to the National Transit Database and to NCDOT. The reported data is used to validate ridership data and projections submitted with Project Funding Request Forms.

Criteria Percent Weight by STI Category

Regional Impact – 5%
Division Needs – 5%

Facility Capacity

Definition
Identifies the need for additional usage capacity

Formula
The difference in the proposed capacity and the current usage compared to the existing design capacity during the peak period.

Facility (Transit & Admin.) = ((proposed capacity – current usage)/existing design capacity) x 33%
Park & Ride = ((proposed capacity – current usage)/existing design capacity) x 33%
Shelters = ((proposed capacity – current usage)/existing design capacity) X 33%

Data Source
Estimated Utilization is determined by a feasibility study provided local transit system

Criteria Percent Weight by STI Category
Regional Impact – 20%
Division Needs – 10%

Fixed Guideway - Commuter Rail, Light Rail, Street Car, Bus on Shoulder, Bus Rapid Transit, Expansion/Replacement, Track Improvement/Extension

Mobility

Definition
Measures project usage

Formula
Estimated Annual Trips; 1 point for every 250,000 trips; this coincides with FTA's "High" ranking for 25 million or more trips

Data Source
Transit systems report operating statistics to the National Transit Database and to NCDOT. The reported data is used to validate ridership data and projections submitted with Project Funding Request Forms.

Criteria Percent Weight by STI Category
Regional Impact – 20%
Division Needs – 15%

Cost Effectiveness

Definition
Cost per trip over the life of the project to evaluate the project investment

Formula
Measures the cost effectiveness of the project per trip over the life of the project; 100 points for a cost of $4.00 or less per trip; decreasing by 1 point for each $0.11 increase per trip

Data Source
Transit systems report operating statistics to the National Transit Database and to NCDOT. The reported data is used to validate ridership data and projections submitted with Project Funding Request Forms.

Criteria Percent Weight by STI Category
Regional Impact – 15%
Division Needs – 15%

Economic Development

Definition
Growth in employment and population within ½ mile of project stations/stops

Formula
Measures the new employment and population growth in the fixed guideway corridor over 20 years; 1 point per 1,000 new employees and 1 point per 500 new residents

Data Source
2010 Census Data Information

Criteria Percent Weight by STI Category
Regional Impact – 20%
Division Needs – 10%

Congestion Relief

Definition

Measure the expected travel time savings benefits of the project over a 30 year period. The measure listed below is borrowed from the roadway projects and will be replaced with FTA defined criteria once that is released. That will ensure consistency with the rest of the fixed guideway criteria.

Formula

Travel Time Savings – time saved between two destinations before and after project divided by cost of the project; 0-100 point scale TBD; Max points = 100 (values over 100 are capped)

Data Source

Travel Time Savings

Criteria Percent Weight by STI Category

Regional Impact – 15%
Division Needs – 10%

Update 5/7/2014